DOCUMENT RESUME

ED 444 470 IR 020 125

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TITLE Proving Competence: Integrative Assessment and Web-Based Portfolio System in a Dynamic Curriculum.
PUB DATE 2000-00-00
NOTE 7p.; In: Society for Information Technology & Teacher Education International Conference: Proceedings of SITE 2000 (11th, San Diego, California, February 8-12, 2000). Volumes 1-3; see IR 020 112.
PUB TYPE Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Computer Uses in Education; Foreign Countries; Higher Education; Learning Processes; *Meta Analysis; *Portfolio Assessment; Program Development; Role; *Student Evaluation; Teacher Competencies; *Teacher Education; World Wide Web
IDENTIFIERS Authentic Assessment; *Authentic Learning

ABSTRACT

Since 1997, the Amsterdam Faculty of Education (EFA) has been officially recognized as a center for experimental teacher education. This paper describes the development of an assessment system and a World Wide Web-based portfolio system to help students take responsibility for their learning and their competence at three consecutive integrative assessments. The introduction provides background on the EFA and summarizes three ideas that provide the basis for the program: students need to be capable of managing change; students need to be given responsibility; and students have a considerable degree of freedom in filling out the details for their own learning processes. The central concept of meaningful learning is discussed in the second section, including authentic learning in professional education and the phases of the learning process (i.e., orientation, planning, execution, and evaluation). The third section describes program facilities in relation to these learning processes. The following program facilities are presented in detail in the fourth section: (1) orientation (the role of competency descriptions and moments of integrative assessment); (2) planning (the role of contracts); (3) execution (learning practices and the role of resources and metawork); and (4) evaluation (the role of the portfolio). (MES)

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ED 444 470

Proving Competence: Integrative Assessment and Web-based Portfolio System in a Dynamic Curriculum

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Abstract: Since 1997 Amsterdam Faculty of Education (EFA) has been officially recognized as a center for experimental teacher education. We describe the development of an assessment system and a web-based portfolio system to help students take responsibility for their learning and their proving competence at three consecutive integrative assessments. In this paper the new concept of curriculum for educating professional teachers is discussed. A new concept can only be successful in implementation if the assessment system is correspondingly altered. We also briefly describe a web-based portfolio system that supports students in building proof of competence. A more elaborate description of that system is given in the documentation of the poster session "EFA's Digital Portfolio System".

Introduction

The Amsterdam Faculty of Education (EFA) provides for about 4000 students. Most of them study to become teacher on the elementary or the secondary level. In 1997 the Dutch minister of Education reacted to a rather provocative report of one of his advisory committees on the future of education in the Netherlands, and the way teachers should be prepared for this. After a competition between several institutes for Teacher Education, EFA got the ministerial appointment to transform into an 'Experimental Teacher Education Program'.
The basic transformation concepts are set in a constructivistic view on learning. The corresponding processes of change in the institution and in the members of Faculty should mirror the intended processes of change that should occur in students on their way to professional competence.

The advisory committee report speaks about CARE for the present situation and COURAGE to envisage what is needed for the next century. In the next decade society will have gone into the information age, whilst education seems to be organized in the ways of the industrial age. The experimental Teacher Education is one of the courage-projects. It will be an *experiment*, so we don't know where exactly we will end up. That's why we call our endeavor '*expedition*' rather than 'experiment'. This expedition is based on a few important ideas:

Capable of managing change

Teacher Education should adequately prepare students for their profession in a largely unknown future. We cannot predict what that future will be like. However, what we do know is that in the decades to come there will be an increasing demand for professionals who are *capable of managing change* and who can give form and shape to education in the information society – not only because teachers must be able to react quickly to changing circumstances in their teaching, but also because learning paths, in part due to rapid developments in information and communications technology, are becoming increasingly individualized.

Responsible

The program should offer students an environment in which they are indeed given the opportunity to shape their own learning processes. For this, students need to be given *responsibility* and they need to accept it - responsibility not only for the way in which they acquire the (constantly changing) competencies they will need in professional practice, but also for the way in which they demonstrate to the outside world that they have indeed acquired these competencies.

Freedom

In this environment, students have a considerable degree of freedom in filling in the details of their own learning processes. Our program operates in a context in which the requirements for newly qualified teachers are stipulated by law. This means that, although students should be given the opportunity to create their own learning paths toward becoming adequately qualified, we wish students to demonstrate to us, through integrative moments of assessment at three points in the program, that they have acquired the competencies they need to be admitted to the next phase.

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This view runs directly counter to the view that, under the direction of the institution offering the program, the road to becoming a competent and qualified teacher consists of parts of a curriculum that have been determined in advance, and that evidence of competence is synonymous with the successful completion of those parts of the curriculum.

The central concept: Meaningful Learning

Authentic Learning in Professional Education

At as early a stage as possible, the program should create an environment for students which mirrors professional practices. Learning during the program must be linked as far as possible to useful and responsible work resembling work in the profession for which one is being trained. In professional practice, teachers have to carry out relatively complex tasks that fit in with the objectives of the school. To be able to do this useful work well, they must be able to use 'two kinds of learning'. They should not only be able to acquire on their own initiative the knowledge and skills they need to do their job well (learning of the first kind), but they should also be able to continue to learn from the experience gained and to experiment systematically with actions leading to improvement or change (learning of the second kind).

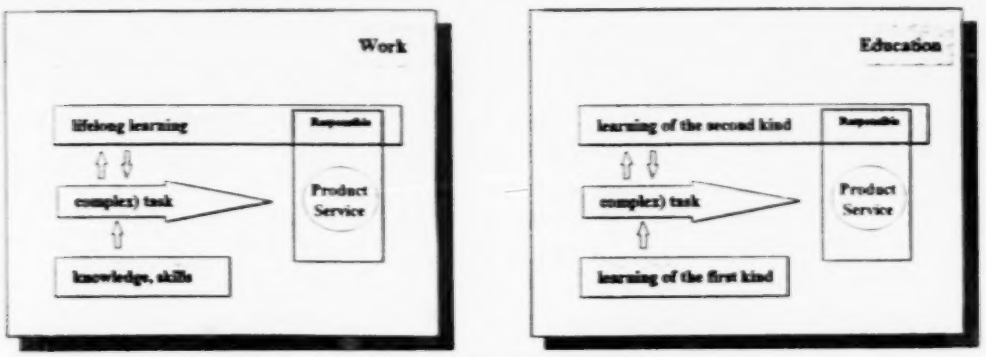

Figure 1: congruence between work and education

Both kinds of learning are important in the concept of 'lifelong learning'. Both are 'guided' by the competencies, which the competent and qualified teacher must have.
The program should offer environments in which students can (and indeed should) put these two kinds of learning into practice connected to authentic practical work, in order to acquire the skills required for the profession.

Each learning process the student goes through in that environment, consists of the phases of **orientation, planning, execution and evaluation**, and is guided by the competencies derived from the professional profile. For students this means that in their orientation with respect to the learning and working process they take the competencies they need to acquire as their point of departure. In doing so, they are aware of the fact that at a later stage, during the assessment, they will have to demonstrate that they have actually acquired the required competencies. On the basis of that orientation, they formulate concrete learning goals and activities (plans), subsequently work on useful products in a learning environment created by the program (execution), and, finally, they evaluate the degree to which those activities have contributed to the realization of their learning goals and the acquisition of competencies.

The assessment of a teacher's work is – if all is well – based on the degree to which the teacher's work has been useful in aiding the achievement of the school's objectives, and on the teacher's ability to make improvements and to manage change. This assessment is therefore not based on disconnected knowledge and skills. Since the program is intended to mirror professional practice, it includes at three points in time an *integrative assessment*. During these assessments, students must show that they are qualified to take the next step: first to be admitted to the main phase, then to enter the assistant teacher phase, and, finally, they need to show that they are competent and qualified to start a professional career. The student's admission to each phase depends on the outcome of these integrative moments of assessment, which are in that sense decisive and final.

During these integrative moments of assessment, students demonstrate individually to a small committee (consisting of people from within the institution and from outside) that they have reached a level of development

which is at least that required. They also show how their growth in acquiring competencies has progressed so far. As proof of their growth, students must compile a 'showcase' from their portfolio containing results of their work and studies, including judgements made by others. In principle, students are thus made responsible for proving their own level of competence, measured against externally specified criteria. This is also in accordance with the procedures followed in professional organizations and professional practice.

Program facilities in relation to learning processes

The program environment consists of a number of facilities which students use in taking responsibility for achieving their processes of learning and gathering evidence of competence. Below, we demonstrate in general the role and function played in the learning and/or working processes which students work through by existing facilities and facilities yet to be developed. In the next section, this is worked out for each phase separately. Although reality is always more complex and ambiguous than schemes and pictures may suggest, a simple graphic representation is given in this figure of the relation between learning and/or working processes and program facilities.

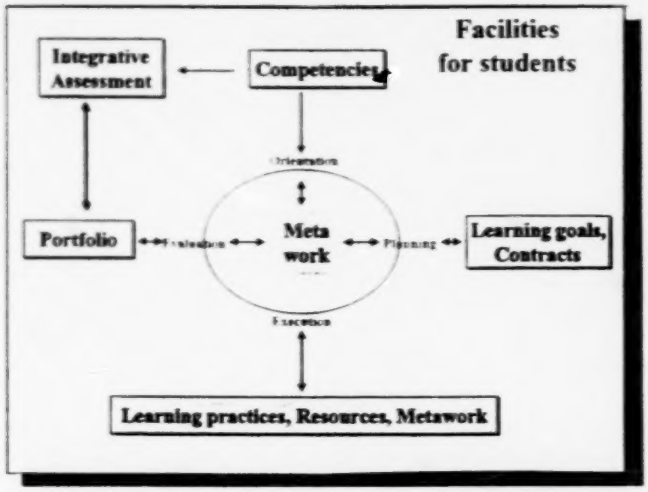

Figure 2: program facilities in relation to learning processes

Orientation

At fixed points during the program, students orient themselves with respect to the competencies they still need to acquire or improve. In this, 'metawork', in the person of the mentor and peer students, plays a supervisory, coaching role. Students and their mentor will use facilities such as the competence descriptions and (the results of) the integrative moments of assessment.

Planning

On the basis of this orientation, students translate the selected competencies into concrete learning goals they want to achieve in a learning practice and they determine which sources in the fields of knowledge, skills and information are required for this. In this phase, students enter into a learning contract and a work contract. In metawork, the mentor and peer students helps students in formulating learning goals.

Execution

In this phase, students work and learn within the frameworks agreed upon in the contract. The learning practice relates the learning process to the work to be carried out in the profession, sources support learning of the first kind, and learning of the second kind takes place by reflecting within metawork on one's own learning and working processes.

Evaluation

In this phase, students consider their growth in acquiring competencies ('internal thermometer') and work on building up part of the evidence for the integrative moments of assessment ('external thermometer'). For both aspects, the portfolio is the main tool. In this, metawork fulfils a coaching, advising function.

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Program facilities in detail

Orientation: The role of competency descriptions and moments of integrative assessment

If students are to take responsibility in orienting themselves with respect to the competencies they need to acquire during the program or a particular phase of the program, a clear description must be given of the competencies they can acquire demonstrably during the program. Competence descriptions are necessary both in relation to the 'internal thermometer' (self-assessment) and in relation to the 'external thermometer' (assessment by others), and they will therefore need to be described in two ways:

1. For the internal thermometer: description in terms of long-term objectives, including functions such as becoming aware of the competence requirements, monitoring of growth and justification of choices made by students within the program facilities.
2. For the external thermometer: implementation of the above-mentioned long-term objectives in criteria to be used during the three integrative moments of assessment for admission to the following phase of the program. Presently, we assume there will be three integrative moments of assessment during the fulltime program (competent for main phase, for Assistant Teacher phase, and qualified to start a career in the teaching profession).

The integrative moments of assessment during the program are based upon the competence descriptions; for this to be possible, for each competence, criteria must have been formulated which students have to meet before they can consider themselves 'competent to undertake the main phase', 'competent to undertake the assistant teacher phase' or 'a competent and qualified teacher'. During the moment of assessment, students must demonstrate individually to a small committee (consisting of people both from within the institution and outside it) that they have developed at least to the required level and they must also show the committee how their growth process proceeded ('lines of development'). Students are also required to show that for a few competencies they exceed the minimum requirements.

The integrative assessments are being developed in a two-dimensional space (see figure 3). The parameters determine how much freedom a student will have in designing his or her own convincing way of proving competence, and which role the show-case from the portfolio plays in that proof. The sequence of three assessments will follow the positions indicated by the skew arrow.

In collecting the evidence, students make use of their portfolio to draw up a 'show-case', a kind of current curriculum vitae. They do that by making a selection of their own learning and working results, which they have compiled in their portfolio with the aim of complying with the criteria for competencies.
In addition, the committee can employ a number of standardized tools to assess students' competencies.

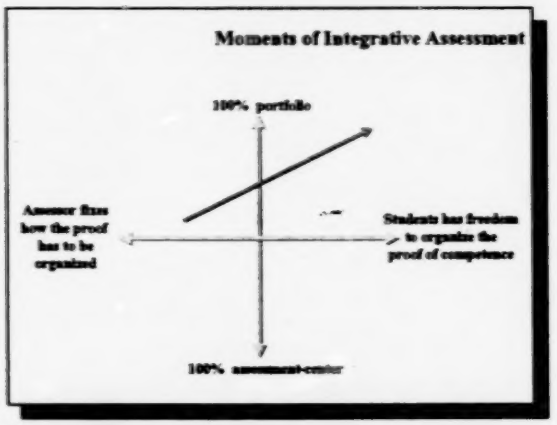
Moments of Integrative Assessment
100% portfolio
Assessor fixes how the proof has to be organized
Students has freedom to organize the proof of competence
100% assessment-center

Figure 3: dimensions of moments of integrated assessment

A prerequisite for the proper functioning of the integrative moment of assessment as an external thermometer is that the institution has established clearly formulated criteria for the competencies in such a way that students still have enough freedom to formulate their learning goals themselves.

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Planning: The role of contracts

In the planning phase, students have to formulate their own learning goals and the activities they plan to undertake, based on an orientation on the competencies they have to acquire. Students' learning goals must be related to the competency descriptions. Students should formulate their goals in such a way that they are related to the work they are going to do in the context of the learning practice. In doing so, students must also take into account that during the integrative moments of assessment they must be able to demonstrate the competencies they have acquired.

After students have oriented themselves, they enter into a contract with the educator responsible for the learning practice and with the commissioner. In the contract with the commissioner, the commissioner specifies the requirements the product or service must meet. In the contract with the educator, the student determines the competencies he or she is going to work on and – more specifically – which concrete (and short-term) learning goals they want to achieve and the resources (knowledge, skills and information) they feel are necessary for this purpose. Students also specify in the contract with the educator how they propose to show (or be tested) that they have indeed worked on these competencies and that they have achieved their learning goals.

In principle, the mastery op resources (knowledge and skills) are not tested as separate units. However, students may include in the contract with the educator that, given the way in which they wish to organize their evidence, certain knowledge should not be tested on the basis of the product delivered, but directly.
In order to help students on their way, descriptions of certain learning goals may be given. Subsequently, students, in consultation with their mentors, must themselves locate these descriptions in their line of development toward competencies and place them in the context of the learning practice. In addition to the learning goals provided, students may also formulate personal learning goals or choose to work with learning goals from learning practices carried out earlier.

Execution: Learning practices and the role of resources and metawork

Students work in learning practices. These practices are learning environments within which students are personally responsible for carrying out tasks that are useful to themselves and to others.
In learning practices, students deliver products or services, preferably commissioned by institutions or people who will make use of the result and who therefore have an interest in the delivery of a useful product. In the contract the student enters into during the planning phase, the responsibilities of those involved in the learning practice are described. The educator in charge of the learning practice will supervise students to help them achieve the agreed learning goals.

Resources refer to the knowledge, skills and information students feel they need in order to be able to do the work in the learning practice well. In the course of their development, students assume a greater measure of personal responsibility for determining the resources involved. Resources are therefore as far as possible offered independently of educator, place and time. In the offering, students' various learning styles are taken into account (varying from lectures to consulting experts to searching libraries and internet to instructions on CD-ROM). ICT plays an important part in making the resources more flexible. In principle, resources are demand-driven. In Year 1, this is only true to a certain extent, because students then still need to acquire basic subject knowledge and skills, which will allow them to ask for new resources.

The metawork element has two functions for students, both of which fall under 'learning of the second kind':

- It provides a tool to help students acquire the metacognitive skills they need to prove during the integrative moments of assessment. For this, use is explicitly made of students' activities and experiences during learning practices;
- It offers students supervision and/or coaching in formulating learning goals and choosing learning practices and preparing for the presentation of the proof of their competence to official bodies (both internal and external) during the integrative moments of assessment. This function provides important support during the phases of orientation, planning and evaluation.

In metawork, the link is made between the learning goals students formulate and the competencies they have to achieve. Metawork pays explicit attention to the course of students' development toward becoming competent and qualified teachers.

Evaluation: The role of the portfolio

Students keep a record of their learning processes in a digital web-based portfolio system that is currently being implemented. The portfolio system is a multi-functional evaluation tool used within the context of metawork. In principle, the portfolio has three functions:

- It is a tool to help students become aware of the competencies involved in the teaching profession: helping them evaluate their own process of development and keep a record of it;
- It is a tool to help students keep a record of their personal curriculum: students record which learning practices they have worked on, which learning goals they had intended to achieve, which products the work resulted in and the assessments they received from commissioners, teachers and/or fellow students;
- It is a tool to help students compile a showcase or curriculum vitae of material they have collected to provide evidence to the assessment committee.

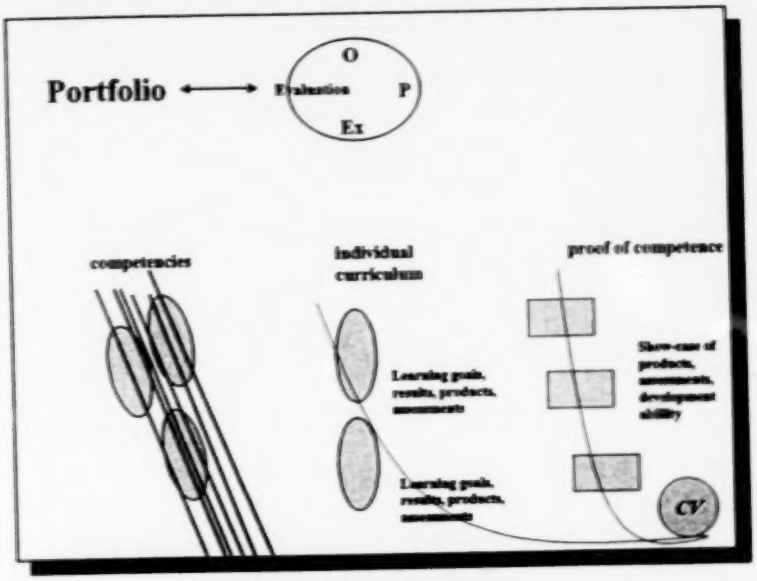

Figure 4: portfolio system

The portfolio therefore has three roles: an educational tool for the development of metacognitive skills, a navigational and recording tool for the personal curriculum, and tool to build convincing proof of competence for the three integrative moments of assessment during the program.
The portfolio plays the role of a 'student tracking system' in a dynamic curriculum.

EFA has chosen to have a digital portfolio in the form of an individual homesite for each student. There were a number of reasons leading to this decision:

- A digital portfolio makes it possible to order a great deal of material clearly and compactly.
- Through hyperlinks students can easily show the relationship between different parts of the portfolio and so demonstrate the coherence between different elements in the program.
- Experience from other institutes also indicates that many students find it motivating to present themselves on their own web-site.
- In this way the portfolio contributes to the necessary development of future teachers' ICT skills. With the latest software it is becoming progressively easier to make a web-site and also within reach of students who are not computer experts.
- Through placing the portfolio on the intranet or internet it can become a means of communication between tutors and students and among students themselves.
- Finally, students can continue to develop their portfolio after finishing their studies and can present themselves to future employers on their own homepage. In this way the portfolio becomes an instrument in 'life-long learning'.

During the paper session at SITE the results of the development of the Integrated Assessments will be shown. A more elaborate description of that system is given in the documentation of the poster session 'EFA's Digital Portfolio System". That poster session will show the actual system.

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